

Appln. of: Schreiber
Serial No.: 10/780,882
Filed: 02/19/2004

REMARKS

Reconsideration and allowance are respectfully requested.

Claims 1-16 are pending in this application.

Claim 12 stands objected to.

Claim 12 has been amended to remove the term "small".

In view of this, it is respectfully requested that the objection to claim 12 be withdrawn.

Claims 6, 10-11 and 14-16 have been indicated as containing allowable matter.

Claims 1-5, 7-9, 12 and 13 stand rejected under 35 USC 103(a) as being unpatentable over Hertel in view of Wright.

Applicant respectfully traverses this rejection.

The Examiner states on page 5 of the Office Action that both Hertel and Wright are from the same field of endeavor, airfoil blades with low density fiber cores and higher density exteriors with solid leading edges. Applicant respectfully disagrees with the Examiner's statement.

First, Wright does not disclose or suggest any embodiment having a low density fiber core, or, for that matter, any embodiment having a core at all. Rather, the blade of Wright is hollow and does not have a core of any type. See Wright, col.1, lines 19-21 (emphasis added): "A propeller blade of low mass is provided for by the use of a box-like hollow structure ..."

Second, Hertel does not disclose the use of "a leading-edge former constructed of a solid metal", as required by claim 1 and contrary to the Examiner's statement above, as well as the Examiner's statement at the top of page 3 of the Office Action that Hertel includes "a leading edge former constructed of a solid metal (22, col. 1, lines 46-50)." Rather, item 22 of

Hertel is specifically identified as a “stainless steel mesh cap 22” at Hertel, col. 4, lines 11-13.

While there is not further discussion of this mesh cap, it can be presumed that during the pressure molding of the Hertel blade, one, two or all of the epoxy film 20, the epoxy impregnated fiberglass cloth 14 or the epoxy impregnated plies 12 will intermesh with the stainless steel mesh cap 22 to secure it in place. See Hertel, col. 4, lines 14-45 and Fig. 2. See also, Hertel at col. 3, lines 25-29: “During this compaction and heating process, the epoxy materials in the composite, the damage resistant layer and the erosion resistant coating mix to form a chemical bond between the composite material and the coating materials.”

Hertel fails to disclose or suggest a leading edge former constructed of a solid metal and the Hertel blade would not have the resistance against bird strikes that the claimed invention does. See the present specification at page 4, lines 3-25 (emphasis added):

The present invention, in a broad aspect, provides for a type of compressor blade for turbomachines and aircraft engines for a large thrust range which is of light weight and aerodynamically favorable design and which is capable of withstanding the loads arising from a bird strike or from eroding matter, in addition to the operating loads.

It is a particular object of the present invention to provide solution to the above problematics by a compressor blade designed in accordance with the features described herein. Further objects and advantages of the present invention become apparent from the description below.

In other words, the idea underlying the present invention is that the metallic enclosing structure of the blade core made of fiber compound material is of a multi-part design and includes a blank for the suction side, a blank for the pressure side and an aerodynamically shaped leading-edge former. The leading-edge former, which is connected to the two blanks, allows the maximum loads caused by bird strike or eroding matter to be taken up and the aerodynamic characteristics to be set optimally. The design in three enclosing components enables the materials applied and the material thicknesses to be varied in accordance with the respective loads to ensure the required strength properties and to minimize the material input to save weight also on the side of

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the enveloping structure. The multi-part design of the enclosing structure using a leading-edge former also provides for easy repair of the compressor blade.

Therefore, contrary to the Examiner's statements, Hertel and Wright are quite different from another and there is no teaching, suggestion or motivation provided in either reference to combine the two references. Rather, the Examiner has merely combined elements from each reference together, using the presently claimed invention as a guide, without a teaching suggestion or motivation to combine such references provided by the prior art itself. Thus, it is improper to combine these two references in an attempt to find claim 1 obvious.

In view of the above, it is respectfully requested that the rejection of claim 1 be withdrawn. Since the remaining claims all depend from claim 1, they are also allowable for the same reasons as given for claim 1, as well as for the further limitations contained therein.

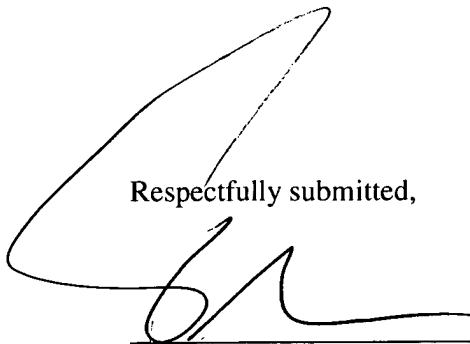
With respect to claim 2, the Hertel mesh cap 22 is not welded to any component, let alone pressure side and suction side blanks and does not cure the deficiencies of Wright with respect to claim 2.

With respect to claim 7, neither Wright nor Hertel discloses or suggests a leading-edge former which includes an attaching rib facing towards the blade core and which protrudes into the fiber compound material. The Wright web 44 does not protrude into any fiber compound material, as the Wright blade is hollow, but even if the Wright blade had a fiber core, the web 44 would not protrude into it but would only form a leading edge face for the core.

In view of the above, it is believed that the application is in condition for allowance and such a Notice is respectfully requested. If anything else is needed to place the application in condition for allowance, it is kindly requested that the undersigned be contacted.

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Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'TJ Klima', is written over a horizontal line.

Timothy J. Klima
Reg. No.: 34,852

Harbin King & Klima
500 Ninth Street SE
Washington, DC 20003
Ph: 202-543-6404
Fax: 202-543-6406